

REMARKS/ARGUMENTS

Claims 1 to 6 and 8 to 20 are now in the application.

The present application discloses a keyboard with movable keys for accommodating handicapped users. The key can be placed in any one of a plurality of key receptors in the keyboard. The keycap of each of these keyboard keys is marked with its alphanumeric or functional symbol which contains a unique self-defining binary indicator that identifies the symbol on the keycap and accompanies the key into any of the key receptor positions of the keyboard. A matrix of key sensing circuits underlies the key receptor positions of the keyboard is configured to detect the indicator on a key irrespective of the keys receptor position in the keyboard. When a key is depressed, the matrix provides an output to a keyboard controller identifying the depressed keys binary indicator. The keyboard controller in turn provides key signals to the keyboard's connector that are indistinguishable by a computer system from the output of that key if it were in its assigned QWERTY keyboard position. This enables the disabled user to modify key positions on the keyboard to accommodate the users disability and carry this keyboard from one computer system to another and simply exchange it for the standard keyboard for the computer. With applicant's keyboard, no changes are required to be made to any software or hardware of the computer in order to allow the disabled user to use the computer. Furthermore, other users are not required to reconfigure the computer system after the standard keyboard has been reinstalled.

Rejections under 35 USC §103

A. Claims 1 to 5, 9 to 14 and 17 are rejected under 35 USC §103(a) as being unpatentable over Boldridge et al U.S. Patent #4,712,092 in view of Barry et al U.S. Patent #6,014,131, further in view of Taylor, U.S. Patent 3,765,014.

As pointed out above, the keys in the keyboard of the present application are movable and carry an identifying indicator along with them, which keys and indicators are movable from position to position on the keyboard. Underlying the receptor positions of the keyboard is a matrix which detects the movable identifying indicators of the keys. The combination of these movable keys with a matrix capable of detecting indices on the keys enables the keyboards to be easily reconfigured to accommodate the users disability. No knowledge of the keyboard or computer's hardware or software is needed for a disabled user or his/her helper to position the movable keys in their desired position. None of the references in the combination cited by the Examiner shows either the keys that contain indices movable with the key or a matrix that can detect the indices.

In the Boldridge patent the keys are not easily movable and do not contain an indicator identifying to the matrix the key being pressed. Each of the keys of the Boldridge patent contains an unmarked plunger with an identical percussion tip 20 which strikes plate 30 attached to the matrix element 32 through a mask 37 which contains the key identification pattern. Further, the keys 11 are fixed to the surface 14 of the keyboard and cannot be moved without disassembly of the keyboard and the keys. Therefore the keys cannot be moved from one position to another carrying with them the identifying indicia as described in the present application. Even if the keys were movable and contains the indicia, the matrix in Boldridge is incapable of detecting the indicia on the movable keys.

The addition of the teaching of the Barry et al and Taylor patents to that of Boldridge et al does not change this. As pointed out by the Examiner, the Barry patent does not show keys capable of being positioned in any key position. The use of relegendable LCD keyswitches does not change the fact that the Boldridge keys or Barry keys cannot be moved.

Substitution of the keys of the Taylor patent for those in Boldridge does not change this. The Taylor keys, like those in the Boldridge patent, contain a plunger 90 with an uncoded percussion tip 92. This tip fits into a ferrite element in the base to complete a circuit between primary 30 and secondary 32 wires where each key position contains a unique arrangement of secondary wires. Therefore like the Boldridge patent even if the Taylor keys did carry a legend, the matrix in Taylor could not identify the indicia on the key movement of a Taylor key into a given key position in either the Taylor or Boldridge layouts would change the key letter viewable to the user but would not change the information provided to the computer for that key position.

It should be apparent from the above discussion that the patents, either alone or in combination, do not disclose keys which are movable from position to another position in the keyboard carrying with them a coded indicia which is provided to the matrix so that their positions in the keyboard are transparent to the computer thereby enabling the movement of keys to keyboard positions preferable by the user without requiring electronic changing of the keyboard or the computer.

Claims 1 to 5, 9 to 14 and 17 in the application all distinguish from the prior art for the above and other reasons. For instance, original independent claim 1 calls for keys that contain a multi-bit binary code therein and are capable of being positioned in any one of the positions in the keyboard. Previously added independent claim 10 calls for the keys being movable so that any key and its character identifiable code can be placed in any key position and also calls for a circuit matrix capable of detecting the binary code when one of the keys is contacted. The dependent claims further distinguish over the prior art in that they call for additional structure relating to the invention. For instance, claims 17, 18 and 20 claim structure for the keys which enables movement of the keys from

one keyboard position to another without disassembly of the keyboard or movement of adjacent keys.

B. Claims 6 and 15 are rejected under 35 USC §103(a) as being unpatentable over the Boldridge, Barry and Taylor combination in view of Alexander, U.S. Patent 3,706,905.

Applicant's attorney did not see where the Alexander keys are movable keys containing a coded indicia that conveys binary signals to an uncoded matrix. Therefore Alexander does not alleviate the problems existing in the combination cited with respect to claims 1 and 10. Therefore claims 6 and 15 distinguish over the prior art for the reasons given above.

C. Claims 8 and 16 were rejected under 35 USC §103(a) as being unpatentable over the Boldridge, Barry and Taylor combination in view of Cherry, U.S. Patent 4,529,848.

Applicant's attorney cannot see where the addition of Cherry matrix switches overcomes the problems existing in the combination used in rejection of the independent claims 1 and 10.

The combination cited by the Examiner does not establish a prima facie case of obviousness under 35 USC 103. As pointed out above, the patents in the combination do not show critical elements recited in the claimed combination. Further, there is no suggestion to combine or modify the references, as suggested by the Examiner. Nothing in the references suggest making the combinations proposed by the Examiner. Therefore it appears that the Examiner has used hindsight of applicant's disclosure to assemble his combinations. In fact, it appears to applicant's attorney that what the Examiner has done is use the disclosure of the present invention as a recipe and chosen elements of the prior art as ingredients for the recipe to form his combinations. The resulting combinations are not what is disclosed or claimed in the application and are most likely inoperable.

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For the above reasons, it is respectfully submitted that all claims are allowable, and the application is in condition for allowance. Therefore it is respectfully requested that it be reconsidered, allowed and passed to issue.

RESPECTFULLY SUBMITTED,

A handwritten signature in cursive script, reading "James E. Murray".

James E. Murray - Attorney
Registration No. 20,915
Phone: (845) 462-4763
Fax: (845) 432-9601